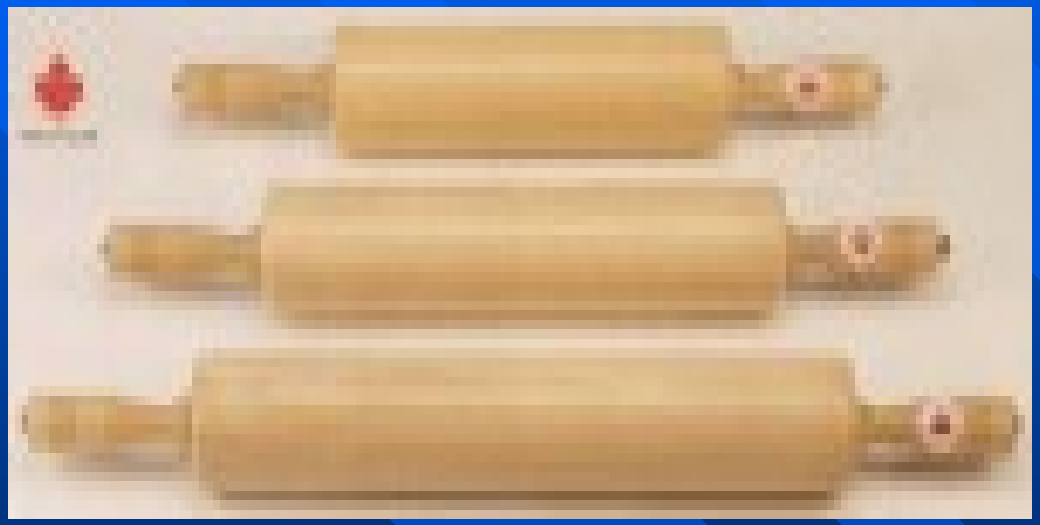
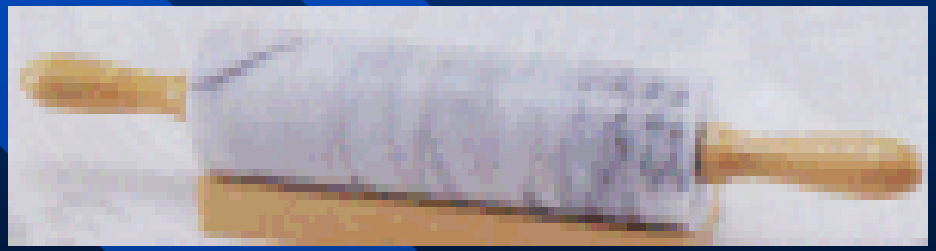
Anesthesia

- The loss of feeling or sensation (especially sensation of pain)

GET
WICKED.
WICKED
WORTH





Terminal Learning Objective

- Given a specific anesthesia classification and the necessary equipment and supplies, the operating room specialist will be able to perform the duties of the circulator or scrub technician as they relate to the specific anesthetic classification IAW cited references.

ELO A.

- **Condition: Given a list of anesthesia related terms and the definition of each.**

  Action: Match the term to the definition.

  Standard: IAW Alexander's and Berry and Kohn's.

Terminology

- Anesthesia - loss of feeling or sensation (especially sensation of pain)
- Analgesia - lessening of pain.
- Anesthetic - an agent that produces local or general loss of sensibility.

Terms cont'd

- Anesthetist - a person trained to administer an anesthetic. (nurse anesthetist, Certified Registered Nurse Anesthetist [CRNA]).

- Anesthesiologist - a physician who specializes in the field of anesthesia.

Terms cont'd

- Induction - the period from the beginning of the administration of the anesthetic until the patient is unconscious and at the level of stabilized anesthesia.

More Terms

- Endotracheal Intubation - introduction of a tube into the trachea (windpipe) to maintain the airway
- Inhalation - Taking air or vapors into the lungs
- Intravenous – The act of delivering drugs into the vein.
- Intramuscular – The act of delivering drugs by injection into the muscle.

More Terms

- Premedication - drugs given in advance of the operation to allay anxiety, produce amnesia, dull awareness of the OR environment, diminish secretions, and raise pain threshold

More Terms

- Narcotic – Drug derived from opium or opium-like compounds that depresses the central nervous system thus relieving pain and producing sleep.

- Tranquilizer – A drug that acts to reduce mental tension and anxiety without interfering with normal mental activity.

More Terms

- Analgesic – A drug that relieves pain. (i.e. aspirin, anti-inflammatory etc.)

- Anticholinergics – An agent that blocks parasympathetic nerve impulses.

Last Term

- Depolarizing – A reversal of charges at a cell membrane; an electrical change in an excitable cell in which the inside of the cell becomes positive in relation to the outside. (i.e. Succinylcholine)

ELO B.

- **Condition:** Given a list of factors.

  Action: Select those considered when determining the choice of anesthesia.

  Standard: IAW Berry and Kohn's and Goldman

Factors

- Age of patient
- Physical, mental, and emotional status
- Height and weight
- Comorbid condition
  - A disease coexisting with the primary disease.

More Factors

- Current medication
- Allergies
- Substance abuse
- Emergency conditions
- Presence of complicating systematic disease of the concurrent drug therapy, as determined by the American Society of Anesthesiologist Classification (ASA)

ASA Classifications

- Class I - no systemic disease - a healthy male having an arthroscopy
- Class II - mild to moderate systemic disturbance - overweight person, smoker, controlled hypertensive patient

ASA cont'd

- Class III – severe systematic disturbances which impact on their daily life (brittle uncontrollable diabetic)

- Class IV – severe systematic disorders that are threatening; not necessarily correctable by surgical means – wide spread means (vascular disease)

More ASA

- Class V – moribund patient – one who is not expected to live 24 hours (organ donors)

Factors cont'd

- Previous anesthesia experience
- Anticipated procedure
- Position required
- Patient Preference

ELO C.

- **Condition:** Given the appropriate information.

  Action: Select the definition, advantages, disadvantages, and methods of administration.

  Standard: IAW Berry and Kohn's.

Local Anesthesia

- Define
- Advantages
  - Nonflammable
  - Less equipment required; more economical
  - Patient remains conscious

More Advantages

- Suitable for patients with full stomachs, outpatient surgery, minor procedures, and when it is necessary for the patient to be awake and cooperative

- Surgeon can administer

Disadvantages of Local

- Not practical for all surgeries
- Patients vary in response to the drugs
- Possible over dosage
- Some patients get anxious when awake during the procedure

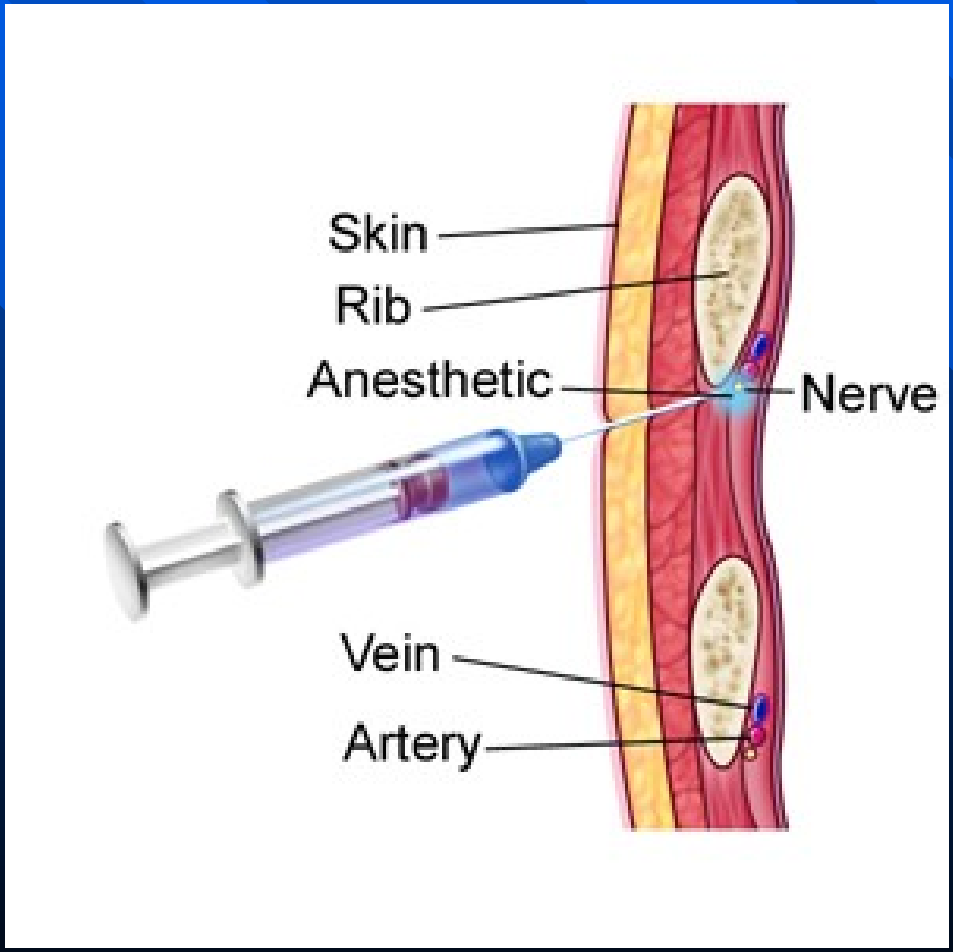
Types of local anesthetic

Generic	Brand
Procaine HCL	Novacaine
Chloroprocaine HCL	Nesacaine
Tetracaine HCL	Pontocaine
Lidocaine HCL	Xylocaine
Mepivacaine HCL	Carbocaine
Bupivacaine HCL	Marcaine,Sensorcaine

Sample Procedures

- Breast biopsy
- Hernias
- Cataracts
- Septoplasty
- Carpal tunnel release
- Any minor procedure that can be performed within the time constraints and tolerated by the patient

Example



BREAK

- 10 MIN
- DON'T BE LATE!

ELO D.

- Condition: Given the appropriate information.

  Action: Select the definition, advantages, disadvantages, administrative procedures, and uses of the various types of regional anesthesia.

  Standard: IAW Berry and Kohn's and Goldman.

Regional Anesthesia

- Define

- Types
  - Peripheral nerve block – the anesthetic is injected into a nerve or group of nerves proximal to the proposed incision site

Peripheral Nerve Block cont'd

- Agents used – most local agents previously discussed, lidocaine used frequently
- Advantages –
- Nonflammable
- Less equipment used the general anesthesia, more economical

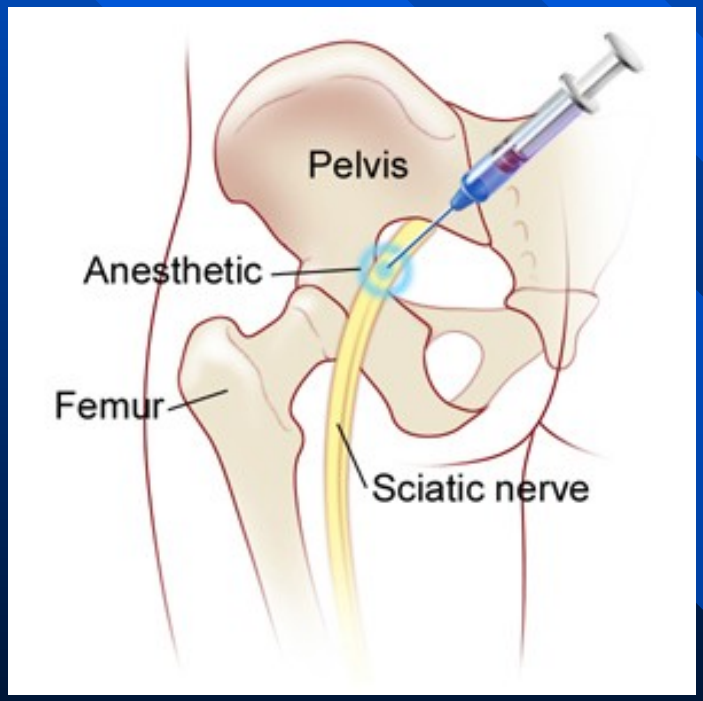
PNB cont'd

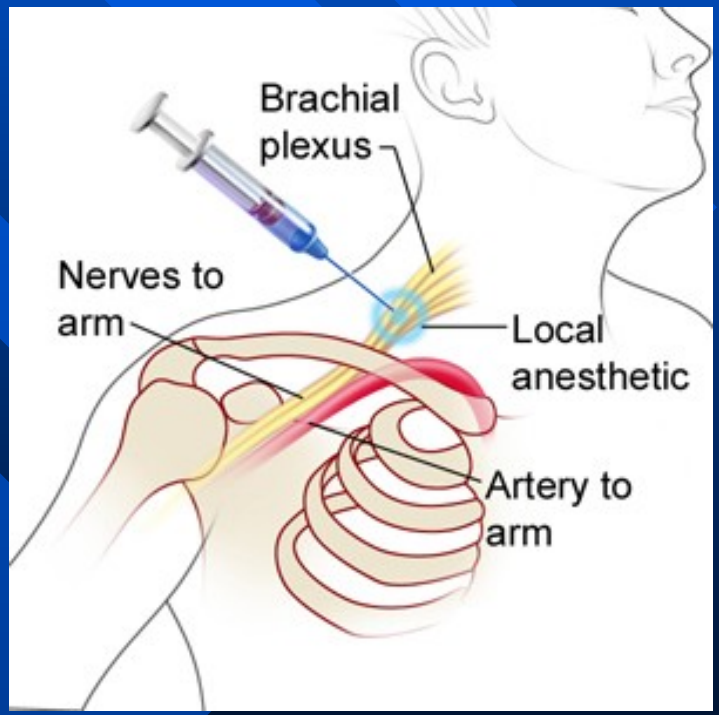
- Disadvantages –
  - »Not practical for all procedures limited by time,area, and location of surgery
  - »Patients vary in their response to the drugs
  - »Possible overdose (could be fatal)

Use for PNB

- Digital block – finger case
- Hand block – finger case
- Auxiliary (arm) block – wrist and arm cases
- Foot/ankle block – podiatry cases

Examples


Pelvis
Anesthetic
Femur
Sciatic nerve


Brachial plexus
Nerves to arm
Local anesthetic
Artery to arm

Spinal Anesthesia

- Agents used commonly include lidocaine and bupivacaine; current trends involve the use of narcotics
- Advantages –
  - Patient is conscious
  - Gag reflex is intact
  - Nonirritating to the respiratory system
  - No difficulty with airway problems
  - Excellent muscle relaxation

Disadvantages to Spinal

- Circulatory depression
- Agent cannot be removed after injection
- Nausea and vomiting possible
- Danger of infection or trauma to spinal column

Methods of Administration

- Patient position
  - Lateral – the most common
  - Sitting
  - Kraske
- Circulator supports, reassures, and observes patient

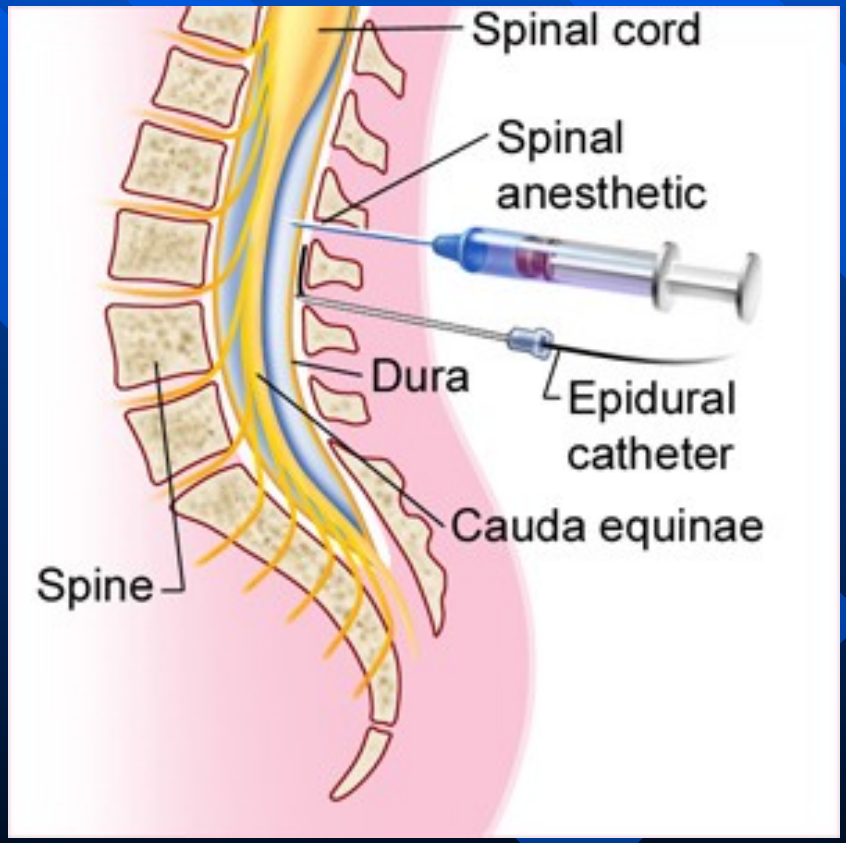
Methods cont'd

- Skin is cleansed
- Performed using a disposable spinal tray
- After spinal is set, patient is carefully positioned for the procedure

Uses For Spinal

- Lower abdominal procedures
- Inguinal procedures
- Lower extremity procedures
- Caesarean (“C”) section
- Urologic procedures

Example


Spinal cord
Spinal anesthetic
Dura
Epidural catheter
Cauda equinae
Spine

BREAK

- 10 MIN
- DON'T LET ME SEND THE TROOPS AFTER YOU……

ELO E.

- Condition: Given the appropriate information.

  Action: Select the advantages, disadvantages, and methods of administration, basic procedures, and uses of general anesthesia.

  Standard: IAW Alexander's, Goldman, and Berry and Kohn's.

General Anesthesia

- Define

- Method of Administration
  - Inhalation agents
  - Intravenous agents

Advantages of General

- Permits unlimited operative field
- No time limit
- Patient unconscious
- Maximum muscular relaxation
- Almost all procedures can be performed

Disadvantages of General

- Some impairments of Pulmonary function accompanies general anesthesia
- Liver and kidneys are affected
- More complicated than local or regional

More Disadvantages

- Agents may cause nausea, emesis, or systematic complications
- More expensive
- Waste anesthetics gases involve risk to the OR team

Basic Procedures for Administration

- IV started
- Oxygen inhalation
- Induction with an IV or Inhalation agent
- IV neuromuscular blocker administered

More Basic Procedures

- Endotracheal intubation
- Anesthesia maintained with inhalation and IV agents

Agents Used

- Intravenous
  - Induction agents
    - »Sodium Pentathol
    - »Brevital
    - »Valium
    - »Versed
    - »Ketamine – a dissociative agent

Agents Used cont'd

- Narcotics Analgesics
  - Morphine Sulfate
  - Meperridine (Demerol)
  - Fentanyl (Sublimaze)

More Agents Used

- Supplementary Agents
  - Diazepam (Valium) – Tranquilizer
  - Etomidate (Amidate) – hypnotic agent

Some More Agent Used

- Inhalation Agents
  - Nitrous oxide
  - Volatile liquids
    - **Halothane (Fluothane)**
    - **Enflurane (Ethrane)**
    - **Isoflurane (Forane)**

Stages of Anesthesia

- Stage 1 – initial administration of agent to the loss of consciousness
- Stage 2 – from the loss of consciousness to the onset of regular breathing and loss of eye reflex (also known as the excitement stage)

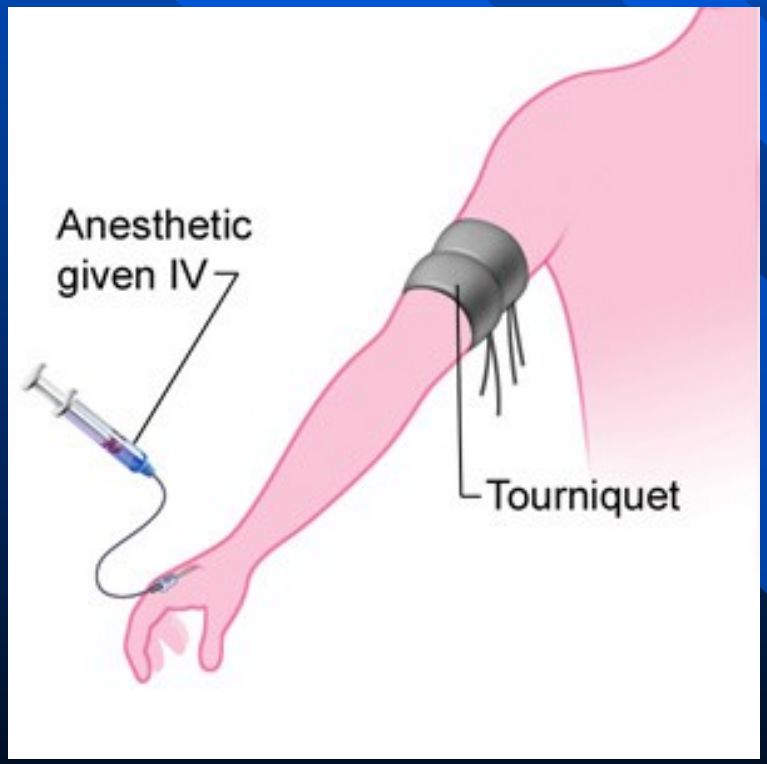
Stages Cont.

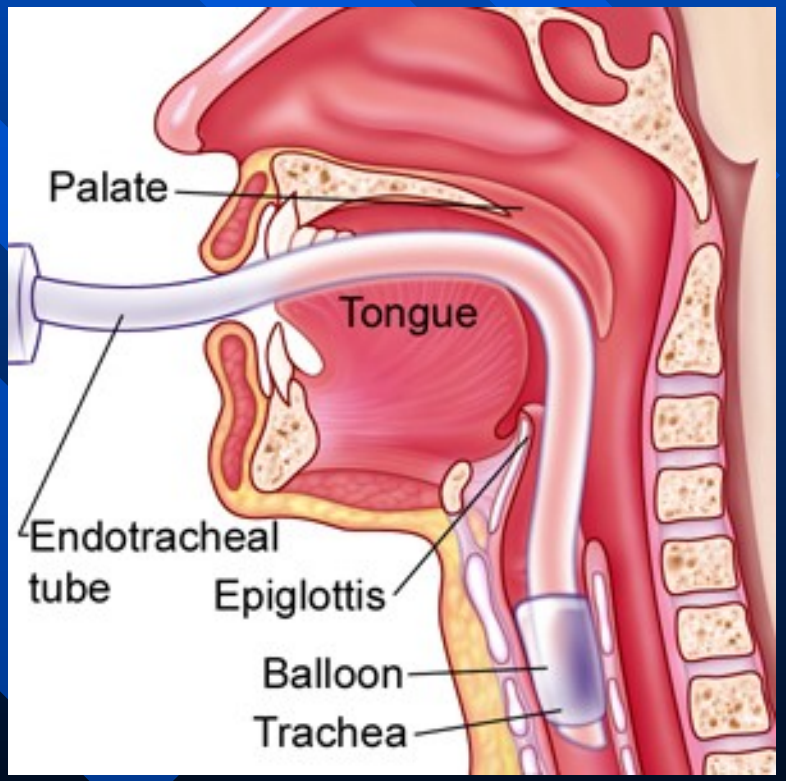
- Stage 3 – begins with the onset of regular breathing and lasts until cessation of respiration, is divided into four plains and is the considered the stage of surgical anesthesia.
- Stage 4 – begins with the cessation of respiration to circulatory failure that leads to death.

Uses for General

- For almost all procedures; necessary for all abdominal and thoracic procedures

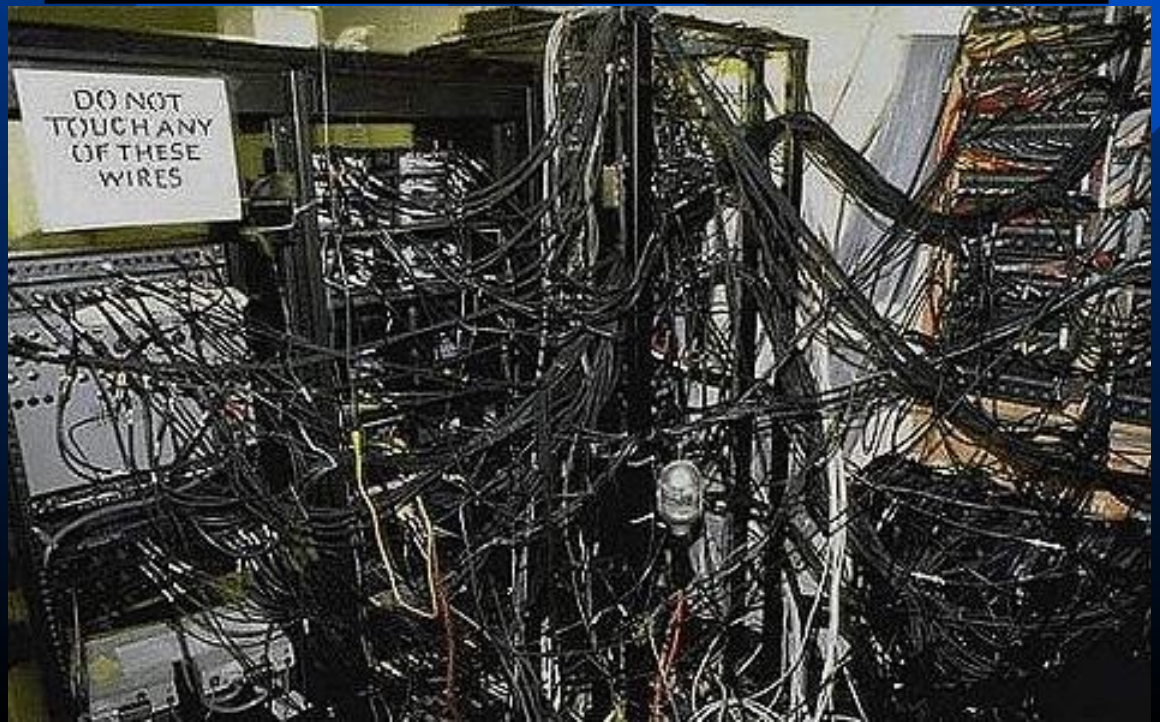
Examples


Anesthetic
given IV
Tourniquet


Palate
Tongue
Endotracheal
tube
Epiglottis
Balloon
Trachea

BREAK

- 5 MIN
- STUDYING IS NOT AN ORGANIZED MESS…



ELO F.

- Condition: Given the appropriate information.

  Action: Select the responsibilities of the Operating Room (OR) Specialist during induction, the surgical procedure, and emergence from anesthesia.

  Standard: IAW Alexander's, Goldman, and Berry and Kohn's.

Responsibities of the OR Tech

- During Induction
  - Circulator
    - »Stand at the patient's side
    - »Maintain Patient Safety
      - Safety Strap
      - Arms secure
    - »Provide emotional support

Responsibilities cont'd

- Assist the anesthetist
  - Pass endotracheal tube
  - Observes monitors
  - Performs the Sellick maneuver
  - Assist securing endotracheal tube
- Maintains a quiet environment

More Responsibilities

- Scrub's responsibilities during intubation – maintain a quiet environment

- During the Procedure
  - Circulator
    - »Observe the color of blood
    - »Observe suction and sponges
    - »Maintain a quiet environment

Again More Responsibilities

- Assist the anesthetist
- Maintain patient Safety

– Scrub

- Observe the color of the blood
- Observe tissue manipulation

More Responsibilities

- During Emergency Anesthesia
  - Circulator
    - » Maintain a quiet environment
    - » Keep instruments sterile
    - » Maintain patient safety
    - » Ensure suction available
    - » Provide warm sheets/blankets

Again Responsibilities

- »Assist with movement and transportation
- Scrub
  - »Maintain quiet environment
  - »Keep instruments sterile

Related Emergencies & Responsibilities

- Local Anesthesia Emergencies
  - Anaphylactic shock
  - Toxic blood levels
- Regional Anesthesia
  - Injection/absorption of the drug into blood stream
  - Trauma to surrounding structures

More Emerg. & Res.

- General Anesthesia
  - Broncho/Laryngospasm
  - Vomiting/aspiration
  - Extensive blood loss
  - Cardiac arrest

Responsibilities during Anes. Emerg.

- Circulator
  - Get assistance
    - »OR supervisor/floor coordinator
    - »Supervising anesthesiologist
    - »Resuscitative equipment
    - »Maintain patient safety

More Responsibilities

- Assist as directed
  - »CPR
  - »Obtain needed supplies and equipment
  - »Other duties as directed

Again More Responsibilities

- Scrubs Duties
  - Maintain sterility
  - Observe for contamination
  - Assist as scrub when required

The End

- Are there any Questions?????